

Application No. 09/800,823
Date of Response 10/10/2003
Reply to Action of 7/11/2003

Amendments to the Claims

1. (currently amended) An apparatus for regulating the concentration of insulin within [[the]] blood of a living organism, wherein said apparatus is comprised of

an in vitro cell culture for producing insulin,
an in vitro cell culture for producing glucagon,
an in vitro cell culture for producing somatostatin,
means for measuring the concentration of glucose within [[the]] said blood of such living organism,

means for measuring the concentration of insulin within [[the]] said blood of such living organism,

means for delivering a specified amount of insulin to [[the]] said blood of such living organism,

means for delivering a specified amount of glucagon to [[the]] said blood of such living organism,

means for delivering a specified amount of somatostatin to [[the]] said blood of such living organism,

and means for reducing the amount of insulin within [[such]] said blood of such living organism, wherein:

(a) said means for measuring the concentration of glucose within said blood and said means for measuring the concentration of insulin within said blood and said means for measuring the concentration of somatostatin within said blood are each connected to an in vitro cell culture wherein

said in vitro cell culture is selected from the group consisting of
said in vitro cell culture for producing insulin,
said in vitro cell culture for producing glucagon,
said in vitro cell culture for producing somatostatin,
and combinations thereof; and

(b) said means for delivering a specified amount of insulin, said means for delivering a specified amount of glucagon, and said means for delivering a specified amount somatostatin each are connected to a measurement means selected from the group consisting of

means for measuring the concentration of glucose within said blood,
means for measuring the concentration of insulin within said blood,
means for measuring the concentration of somatostatin within said blood,
and combinations thereof.

2. (original) The apparatus as recited in claim 1, wherein said apparatus further comprises means for withdrawing blood from a venous blood supply.

3. (currently amended) The apparatus as recited in claim [[+]]2, wherein said apparatus comprises means for detecting the presence of analytes in said venous blood supply.

Application No. 09/800,823
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4. (original) The apparatus as recited in claim 3, wherein said apparatus is comprised of a controller comprised of means for determining the concentration of said analytes in said venous blood supply .
5. (currently amended) The apparatus as recited in claim 2, wherein said apparatus is comprised of means for reducing the amount of glucagon in [[the]] said venous blood supply.
6. (original) The apparatus as recited in claim 1, wherein said apparatus is comprised of means for reducing the pH of said blood.
7. (original) The apparatus as recited in claim 1, wherein said apparatus is comprised of means for increasing the pH of said blood.
8. (original) The apparatus as recited in claim 3, wherein said apparatus is comprised of means for isolating analytes from said venous blood supply.
9. (original) The apparatus as recited in claim 4, wherein said controller is an application specific integrated circuit controller.
10. (original) The apparatus as recited in claim 1, wherein said apparatus is comprised of a cell culture assembly for producing analyte.
11. (original) The apparatus as recited in claim 10, wherein said apparatus is comprised of a reservoir for storing said analyte.
12. (original) The apparatus as recited in claim 11, wherein said apparatus is comprised of a first pump.
13. (original) The apparatus as recited in claim 12, wherein said apparatus is comprised of a blood analyzer.

Application No. 09/800,823
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14. (currently amended) The apparatus as recited in claim 13, wherein said first pump withdraws said blood from said venous blood supply and conveys [[it]] said blood to a blood analyzer.
15. (currently amended) The apparatus as recited in claim [[+5]]14, wherein said apparatus is comprised of a second pump.
16. (original) The apparatus as recited in claim 15, wherein said apparatus is comprised of a culture media reservoir.
17. (currently amended) The apparatus as recited in claim 16, wherein said second pump withdraws said blood from said venous blood supply and conveys [[it]] said blood to said culture media reservoir.
18. (original) The apparatus as recited in claim 17, wherein said apparatus is comprised of an isolator.
19. (original) The apparatus as recited in claim 18, wherein said apparatus is comprised of a third pump for extracting said analyte from said culture media reservoir and conveying said analyte to said isolator.
20. (original) The apparatus as recited in claim 1, wherein said apparatus comprises a filter for purifying and isolating analytes.